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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/600,694

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Dac-Kwang Jung

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CHA & REITER, LLC

210 ROUTE 4 EAST STE 103

PARAMUS, NJ 07652

EXAMINER

MALKOWSKI, KENNETH J

ART UNIT

PAPER NUMBER

2613

MAIL DATE

DELIVERY MODE

06/07/2007

PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary

Application No.

10/600,694

Applicant(s)

JUNG ET AL.

Examiner

Kenneth J. Malkowski

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2613

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 15 March 2007.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☐ Claim(s) _____ is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1,4,7,10-11 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. _____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date _____
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: _____

DETAILED ACTION

Claim Rejections - 35 USC § 112

1. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

2. Claims 4 and 10-11 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. Claims 4 and 10-11 claims a "central office comprising: ...a second wavelength division multiplexer that multiplexes the broadcasting optical signals multiplexed by the first wavelength division multiplexer." However, said second wavelength division multiplexer is not located at the central office, but rather at the local office.

Claim Rejections - 35 USC § 103

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

4. Claim 1 is rejected under 35 U.S.C. 103(a) as being unpatentable over AAPA in view of U.S. Patent No. 6,895,185 to Chung et al. and further in view of U.S. Patent No. 5,594,748 to Jabr et al.

With respect to claim 1, AAPA discloses a passive optical network system (Figures 1 and 2) comprising a central office (10a, figure 2), a local splitter (21, Figure 2)

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and a plurality of subscriber terminals (30a Figure 2), the central office (10a, Figure 2) and the local splitter (21, Figure 2) being connected with each other through an optical fiber (40, Figure 2), the subscriber terminals (30a, Figure 2) being connected with the local splitter (21, Figure 2), the central office providing optical communication service to the subscriber terminals through the local splitter (broadcasting optical source 17, downstream optical source Figure 2), the central office comprising: a broadcasting optical source that outputs broadcasting optical signals that provide a broadcasting service to the subscriber terminals (17, Figure 2); a downstream optical source that outputs downstream optical signals that provide a downstream data service to the subscriber terminals (11, Figure 2); an upstream optical receiver that receives upstream data service signals transmitted from the subscriber terminals and then converts the received signals into electric signals (13, Figure 2); and a wavelength division multiplexer that multiplexes the broadcasting optical signals output from the broadcasting optical source (15a, Figure 2), and the downstream optical signals output from the downstream optical source (11, Figure 2), such that the multiplexed signals are output (from multiplexer 15a into fiber 40, Figure 2), the wavelength division multiplexer demultiplexing (15a, Figure 2) input upstream data service signals, such that the demultiplexed signals are output to the upstream optical receiver (13, Figure 2). However, AAPA fails to disclose a local office instead of a local splitter. Despite this, local offices in a central office network are well known in the art. Chung, from the same field of endeavor discloses a multi-purpose optical fiber access network (title), which includes a central office (400, Figure 4) as well as a local office (420, Figure 1), which is connected to several subscriber terminals (460, Figure 4). Chung also discloses de-multiplexing upstream data service signals (via de-

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multiplexer 419, Figure 4) such that the de-multiplexed signals are output to an upstream receiver (416-417, Figure 4). Therefore, it would have been obvious to one of ordinary skill in the art to replace the splitter as disclosed in AAPA with the local office as disclosed by Chung. The motivation for doing so would have been to increase system design flexibility, for instance if the local office of Chung is used both time division multiplexing or WDM can be used (column 13 lines 30-35) whereas the system as taught by AAPA only uses WDM. Furthermore, the local office as taught by Chung can satisfy a greater amount of customer services through having multiple types of communication interfaces (column 1 lines 14-23).

Furthermore, AAPA in view of Chung fails to disclose a pumping optical source that outputs pumping optical signals from the pumping optical source, which are used to amplify other source signals. Jabr, from the same field of endeavor discloses a pumping optical source (102, figure 1) which outputs pumping optical signals from the pumping source and combines (via mux 104, Figure 1) the pumping optical signals with other source signals in (signals in fiber 110, Figure 1) in order to amplify said source signals (column 1 lines 36-46). Therefore, it would have been obvious to one of ordinary skill in the art at the time of invention to implement the optical pump system as disclosed by Jabr into the optical communication network as disclosed by AAPA in view of Chung. The motivation for doing so would have been to provide a longer transmission distance by providing amplification beyond the transmission site.

5. Claim 7 is rejected under 35 U.S.C. 103(a) as being unpatentable over AAPA in view of U.S. Patent No. 6,895,185 to Chung et al. and further in view of U.S. Patent No. 5,594,748 to Jabr et al. and further in view of U.S. Patent No. 6,594,287 to Seytter et al.

With respect to claim 7, AAPA discloses a passive optical network system (Figures 1 and 2) comprising a central office (10a, figure 2), a local splitter (21, Figure 2) and a plurality of subscriber terminals (30a Figure 2), the central office (10a, Figure 2) and the local splitter (21, Figure 2) being connected with each other through an optical fiber (40, Figure 2), the subscriber terminals (30a, Figure 2) being connected with the local splitter (21, Figure 2), the central office providing optical communication service to the subscriber terminals through the local splitter (broadcasting optical source 17, downstream optical source Figure 2), the central office comprising: a broadcasting optical source that outputs broadcasting optical signals that provide a broadcasting service to the subscriber terminals (17, Figure 2); a downstream optical source that outputs downstream optical signals that provide a downstream data service to the subscriber terminals (11, Figure 2); an upstream optical receiver that receives upstream data service signals transmitted from the subscriber terminals and then converts the received signals into electric signals (13, Figure 2); and a wavelength division multiplexer that multiplexes the broadcasting optical signals output from the broadcasting optical source (15a, Figure 2), and the downstream optical signals output from the downstream optical source (11, Figure 2), such that the multiplexed signals are output (from multiplexer 15a into fiber 40, Figure 2), the wavelength division multiplexer demultiplexing (15a, Figure 2) input upstream data service signals, such that the demultiplexed signals are output to the upstream optical receiver (13, Figure 2). However, AAPA fails to disclose a local office instead of a local splitter. Despite this, local offices in a central office network are well known in the art. Chung, from the same field of endeavor discloses a multi-purpose optical fiber access network (title), which includes a central office (400, Figure 4) as well

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as a local office (420, Figure 1), which is connected to several subscriber terminals (460, Figure 4). Chung also discloses de-multiplexing upstream data service signals (via de-multiplexer 419, Figure 4) such that the de-multiplexed signals are output to an upstream receiver (416-417, Figure 4). Therefore, it would have been obvious to one of ordinary skill in the art to replace the splitter as disclosed in AAPA with the local office as disclosed by Chung. The motivation for doing so would have been to increase system design flexibility, for instance if the local office of Chung is used both time division multiplexing or WDM can be used (column 13 lines 30-35) whereas the system as taught by AAPA only uses WDM. Furthermore, the local office as taught by Chung can satisfy a greater amount of customer services through having multiple types of communication interfaces (column 1 lines 14-23).

Furthermore, AAPA in view of Chung fails to disclose a pumping optical source that outputs pumping optical signals from the pumping optical source, which are used to amplify other source signals. Jabr, from the same field of endeavor discloses a pumping optical source (102, figure 1) which outputs pumping optical signals from the pumping source and combines (via mux 104, Figure 1) the pumping optical signals with other source signals in (signals in fiber 110, Figure 1) in order to amplify said source signals (column 1 lines 36-46). Therefore, it would have been obvious to one of ordinary skill in the art at the time of invention to implement the optical pump system as disclosed by Jabr into the optical communication network as disclosed by AAPA in view of Chung. The motivation for doing so would have been to provide a longer transmission distance by providing amplification beyond the transmission site.

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Furthermore, AAPA in view of Chung and further in view of Jabr fail to disclose a second and third WDM which multiplex the downstream optical signals and the broadcast optical signals respectively. However, using multiple levels of multiplexing to combine several different signals is well known in the art. Seytter, from the same field of endeavor discloses multiplexing at least two streams of multiplexed data (ZDS output from MUX11-lm) via a third multiplexer (MUX2, Figure 2)(Figure 3). Therefore, it would have been obvious to one of ordinary skill in the art at the time of invention to implement the multiple layered multiplexing scheme into the central office as taught by AAPA in view of Chung and further in view of Jabr. The motivation for doing so would have been to provide a more efficient measure for error identification and/or error correction (column 2 lines 9-13).

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Kenneth J. Malkowski whose telephone number is (571) 272-5505. The examiner can normally be reached on M-F 8:30-5:00.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Ken Vanderpuye can be reached on (571) 272-3078. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

KJM 5/31/07



KENNETH VANDERPUYE
SUPERVISORY PATENT EXAMINER